

Set 1

Show 2

1. A vial for a level, said vial comprising an outer wall, said outer wall being straight and cylindrical, an inner cavity, said inner cavity being curved, said inner cavity being curved in a substantially uniform arc having an apex, opposed ends spaced from the apex and opposed spaced sides, planes tangent to said opposed spaced sides are at an angle of 90 degrees from the apex, the apex of the curved inner cavity being closer to the cylindrical outer wall of the vial than the opposed ends of the inner cavity, said inner cavity is substantially uniform in cross section throughout its length, planes tangent to the sides of the cavity are parallel to each other and at right angles to a plane tangent to said apex, one end of said cavity terminates in an end wall perpendicular to the said outer wall, said end wall having inner and outer faces parallel to each other, the other end of said cavity is open and wherein a cap is adapted to close the said open end, and orienting means integral with said outer walls to permit proper orientation and mounting of the vial in a level.

Set 1

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8. A vial as set forth in claim 1 wherein said orienting means comprise a pair of keys which extend from and are integral with the outer wall of said vial adjacent said open end, said keys extending in opposite directions from each other.

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9. A vial comprising an outer wall, said outer wall being straight and cylindrical, an inner cavity, said inner cavity being curved, said inner cavity being curved in a substantially uniform arc having an apex, opposed ends spaced from the apex and opposed spaced sides at an angle of 90 degrees from the apex, the apex of the curved inner cavity is closer to the cylindrical outer wall of the vial than the opposed ends of the inner cavity, the said cavity is substantially uniform in cross section throughout its length, planes tangent to the sides of the cavity are parallel to each other and at right angles to a plane tangent to said apex, one end of said cavity terminates in an end wall, the other end of said cavity is open and wherein a cap is adapted to close the said open end, a pair of keys extend from the outer wall of said vial adjacent said open end, said keys extending in opposite directions from each other, each of said keys have edge and side walls at right angles to each other, each of said walls being tangent to the outer wall of the vial with one of said walls being parallel to the plane tangent to the apex of the cavity.

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13. A level having a pair of opposed parallel rails, a web perpendicular to said rails and connecting the rails together, a vial-receiving opening in said web, said vial-receiving opening having opposed notches therein, said opposed notches having an end wall and spaced side walls at right angles to said end wall, at least one vial mounted in said vial-receiving opening, the opposed ends of the vial being mounted in the opposed notches, said vial comprising an outer wall, said outer wall being straight and cylindrical, an inner cavity within said vial, said inner cavity being curved, and orienting means are provided in said outer wall to permit proper orientation and mounting of said vial in the notches in said vial-receiving opening, the inner cavity is curved in a substantially uniform arc having an apex, opposed ends spaced from the apex and opposed spaced sides at an angle of 90 degrees from the apex, the apex of the curved inner cavity

Sub C3
End

is closer to the cylindrical outer wall of the vial than the ends of the inner cavity and wherein a plane tangent to said apex is parallel to said rails, the said cavity is substantially uniform in cross section throughout its length, planes tangent to the sides of the cavity are parallel to each other and at right angles to a plane tangent to said apex, one end of said cavity terminates in an end wall perpendicular to said outer wall, said end wall having inner and outer faces parallel to each other the other end of said cavity is open and wherein a cap is adapted to close the said open end, said orienting means comprise a pair of keys extending from and integral with the outer wall of said vial adjacent said open end, said keys extending in opposite directions from each other, said keys adapted to be received in the opposed notches.

Sub C4
End

20. A level having a pair of opposed parallel rails, a web perpendicular to said rails and connecting the rails together, a vial-receiving opening in said web, said vial-receiving opening having opposed notches therein, said opposed notches having an end wall and spaced side walls at right angles to said end wall, at least one vial mounted in said vial-receiving opening, the opposed ends of the vial being mounted in the opposed notches, said vial comprising an outer wall, said outer wall being straight and cylindrical, an inner cavity within said vial, said inner cavity being curved, and orienting means are provided in said outer wall to permit proper orientation and mounting of said vial in the notches in said vial-receiving opening, the inner cavity is curved in a substantially uniform arc having an apex, opposed ends spaced from the apex and opposed spaced sides at an angle of 90 degrees from apex, the apex of the curved inner cavity is closer to the cylindrical outer wall of the vial than the ends of the inner cavity and wherein a plane tangent to said apex is parallel to said rails, the said cavity is substantially uniform in cross section throughout its length, planes tangent to the sides of the cavity are parallel to each other and at right angles to a plane tangent to said apex, one end of said cavity terminates in an end wall

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keys*

perpendicular to said outer wall, said end wall having inner and outer faces parallel to each other, the other end of said cavity is open and wherein a cap is adapted to close the said open end, said orienting means comprise a pair of keys extending from and integral with the outer wall of said vial adjacent said open end, said keys extending in opposite directions from each other, said keys adapted to be received in the opposed notches.

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keys*

21. A level as set forth in Claim 20, wherein each of said keys have edge and side walls at right angles to each other, each of said walls having an end edge, said end edges being tangent to the outer wall of the vial with one of said walls being parallel to the plane tangent to the apex of the cavity, said edge and side wall adapted to abut the end and side walls of the notches.

C1

43. A method of making a vial having an outer wall and an inner cavity comprising the steps of forming the outer wall in a straight cylindrical configuration, forming the inner cavity of the vial in a curve, said inner cavity and the outer straight cylindrical wall being formed simultaneously, the inner cavity being formed curved in a substantially uniform arc having an apex with opposed ends spaced from the apex and with opposed spaced sides at an angle of 90 degrees from the apex, the apex of the curved inner cavity is formed closer the cylindrical outer wall of the vial than the ends of the inner cavity, the said cavity is formed substantially uniform in cross section throughout its length, planes tangent to the sides of the cavity are formed parallel to each other and at right angles to a plane tangent to said apex, one end of said cavity is formed terminating in an end wall, the other end of said cavity if formed open, a pair of keys are formed extending from the outer wall of said vial adjacent said open end, said keys extending in opposite directions from each other, each of said keys is formed with edge and side walls at right angles to each other, each of said walls having an end edge, said end edges being tangent to the outer wall of the vial, with one of said walls being parallel to the plane tangent to the apex of the cavity.
